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Synchronous and Asynchronous E-learning and Self-concept: The Case of Iranian EFL Learners

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Abstract: The fact is that the process of English learning is complex and influenced by different factors. A factor which has been shown to have a key role in the process of language learning is technology. Accordingly, this study sought to investigate the effect of synchronous and asynchronous e-learning on EFL learners' self-concept. In so doing, a quantitative quasi-experimental pre-test post-test design was utilized. The participants of the study included 60 male intermediate EFL learners studying English at a private language institute in Tehran, Iran. The sampling method of the study was convenience sampling because two intact intermediate classes were selected as the participants. The instruments used for the purpose of data collection were Quick Oxford Placement Test (QOPT) and Self-concept Questionnaire. Data analysis was conducted using descriptive and inferential statistics (i.e., paired samples t-tests and analysis of covariance (ANCOVA) test). The results of data analysis confirmed that asynchronous e-learning had a significant effect on self-concept of EFL learners. Moreover, the significant effect of synchronous e-learning on self-concept of EFL learners was proved by the results. In addition, it was found that no e-learning type was more effective than the other type of e-learning on EFL learners' self-concept. The findings have some implications for EFL teachers, learners, and curriculum planners.

Keywords: E-learning, Asynchronous Learning, Synchronous Learning, Self-concept

Introduction

Recently, due to globalization phenomenon, English learning has turned into an inseparable dimension of human life. However, the fact is that the process of English learning is complex and influenced by different factors. A factor which has been shown to have a key role in the process of language learning is technology. As scholars maintain, the application of technology in the realm of language learning and teaching goes back to 1970s and since then, it has penetrated into the field of English Language Teaching (ELT) with a high speed (Balan et al., 2020).

The belief is that through using technology in teaching and learning English, foreign language materials can be accessed and used more easily, and language learning becomes more meaning-based through increasing personal involvement (Ökmen & Kiliç, 2020). Technological advancements in combination with the introduction of multimedia instruments have paved the way for great conditions for English learning (Colomo-Magaña et al., 2020). It is possible to use technology in different versions and forms in different branches and fields. Similar to other fields, the use of technology is prevalent in education (Jena, 2019).

Electronic learning (E-learning) implies using computers and other electronic devices and applications to guide learners' direct and individualized learning (Chapelle, 2001). E-learning is a kind of learning wherein bidirectional learning and individualized learning comes into play (Ellis, 2004). The aim of

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using e-learning in teaching is to facilitate the language learning process through multidisciplinary approaches.

E-learning or online learning environments can be divided into three categories including synchronous, asynchronous and hybrid learning settings. According to Colomo-Magaña et al. (2020), synchronous electronic learning conditions are cooperative in nature by generating authentic interaction, and utilize teachers' speeches with question-answer meetings run jointly by teachers and students. In synchronous e-learning, students and teachers have simultaneous presence. In contrast, asynchronous Electronic Learning Environments (AELEs) don't depend on time, and learners may work on instructional activities according to their appropriate pace. However, a synchronous session calls for simultaneous student-teacher presence. On the other hand, in asynchronous environments, students can work on e-activities on their own pace and there is no time bound. A hybrid online environment is a blending of synchronous sessions and asynchronous set of e-activities. It can be referred to as hybrid because it combines simultaneity with non-simultaneity as educational design for both synchronous and asynchronous teaching may have altogether different patterns.

In synchronous systems, there is an opportunity for teachers to examine students' level of knowledge and organize the course material appropriately. Moreover, such systems enhance students' participation (Li, 2018). From the students' point of view, immediate feedback will be provided by synchronous systems in the form of "timely explanations and information". This feedback is especially helpful when dealing with abstract concepts. The ability to communicate with other class members and teachers in real time can enhance the interaction that other forms of communication are unable (Li, 2018).

Furthermore, in general, learning and education phenomena including language learning is a complex phenomenon which is heavily influenced by many psychological affective traits among which self-concept can be mentioned. Self- concept or "one's image in one's eyes, one's views of himself as distinct from other persons and things" (Pushpa & Yeshodhara, 2014) can be helpful for individuals in various aspects of life including learning, judgment, decision making, etc. (Pushpa & Yeshodhara, 2014). More interestingly, as put by Pushpa and Yeshodhara (2014), with the help of self-concept, individuals can grow professionally and adjust themselves emotionally with the environment. In terms of the relationship between self-concept and learning, the argument is that self-concept can play a facilitative role in the process of learning through increasing individuals' motivation as one of the most important aspects influencing learners' success (Ribas, 2009). Self-concept is considered to comprise various dimensions, areas or facets, some of which are more related to certain personality aspects (physical, social, emotional), while others appear to be more linked to academic achievement (in different areas and subjects). Self-concept is the set of perceptions or reference points that the individuals has about

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himself; the set of characteristics, attributes, qualities and deficiencies, capacities and limits, values and relationships that the individuals knows to be descriptive of himself and which he perceives as data concerning his identity (Marsh, 1988).

Although e-learning has attracted the attention of scholars in higher education, the volume of studies on the use of synchronous and asynchronous e-learning in EFL classes is still scanty, at least in the context of Iran. More particularly, the volume of research on the effect of synchronous and asynchronous e-learning on affective traits is low. Some part of this parsimony can be due to prevalence of traditional English teaching methods followed in educational settings of Iran in the past decades. What complicates the matter more is that among different psychological factors, the volume of works on self-concept, at least as influenced by synchronous and asynchronous e-learning, is very scarce. Given that self-concept is considered as an important concept in various fields including education (Badiyepeymaiejahromi et al., 2020), the researcher thinks that this factor should receive more heed from the researchers in the field. This study is an attempt to touch this issue by tackling the effect of synchronous and asynchronous e-learning on EFL learners' self-concept. Accordingly, the following research questions are answered in the present study:

RQ1. Does synchronous e-learning have a significant effect on EFL learners' self-concept?

RQ2. Does asynchronous e-learning have a significant effect on EFL learners' self-concept?

RQ3. Which e-learning type is more effective on EFL learners' self-concept?

Material and Methods

Design

This research used a quantitative quasi-experimental pre-test post-test design in order to examine the effect of independent variables (i.e., Synchronous and Asynchronous e-learning) on the dependent variable (i.e., Self-concept).

Participants

The participants of the study consisted of 60 males intermediate EFL learners studying English at a private language institute in Tehran, Iran. They were selected from among 70 intermediate EFL learners studying in the institute which served as the setting of the study, based on Morgan' s table. The sampling method of the study was convenience sampling because two intact intermediate classes were selected as the participants. In fact, due to constraints imposed on the study as the result of Covid-19 pandemic, the researcher could not reach an acceptable sample size by random sampling. The two classes were randomly assigned into two groups namely, synchronous group (SG) and asynchronous group (AG). The participants' mean age was 21. The mother tongue of all of the participants was Persian. The

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researcher observed ethical issues by informing the sample of the purpose of the study. Moreover, their consent for participation in the study was taken. They were also ensured about the confidentiality of their personal information.

Instrument

The required data were collected through the following instrument:

Self-concept Questionnaire

The Persian version of Robson self-esteem questionnaire was used to measure the participants' self-concept. This already validated questionnaire consists of 30 seven-point Likert items (from completely disagree to completely agree) with no sub-scale. The reliability of the questionnaire has been reported by Robson from .94 to .97. Moreover, the companies which are expert in questionnaire normalization have calculated its reliability .85, and confirmed its validity in the context of Iran (Ghaderi, 2005). For the purpose of the present study, the Cronbach's Alpha reliability of the questionnaire was calculated as .85. More, its validity was checked by expert judgement.

Data Collection Procedure

For data collection, first, the sample was collected and informed of the purpose of the study. Moreover, their consent for participation in the study was taken. Next, the sample was assigned into synchronous group (SG) and asynchronous group (AG). Then, the participants were asked to fill the Self-concept questionnaire. Next, both SG and AG participated in ten regular class sessions of the institute, wherein SG benefited from electronic synchronous instruction, and AG from electronic asynchronous instruction, in addition to the mainstream educational materials used in the institute. The classes were held twice a week in 90 minutes. However, the treatment of this study was implemented in the last 20 minutes of the class sessions. During the treatment sessions, in the SG, the participants were provided with the electronic instruction on the educational materials provided in the English textbook taught in the institute, while they were in class, through text and voice chats. However, in the AG, the teacher sent files of instruction made through Word Microsoft Office in the form of Word and PowerPoint files to the learners and asked them to read them. To be more specific, in the SG, the materials were presented to the learners while both teacher and students were simultaneously online. But in the AG, the files of the materials were sent by the teachers to the learners and they were sked to read them at their own set time after the class at home. It is worth mentioning that the instructional materials provided for the two groups were the same. That is, in both groups, Top Notch book (Saslow & Ascher, 2008) was taught. Top Notch is a dynamic communicative course that makes English unforgettable through multiple exposures to language and systematic, intensive recycling. Goals- and achievement-based lessons with can-do statements enable students to confirm their progress. The only difference between the two groups

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was the method of presentation of the materials to the learners. After the treatment, both SG and AG again filled the Self-concept questionnaire. To analyze the data, normality test, descriptive and inferential statistics (i.e., paired samples t-tests and analysis of covariance (ANCOVA) test) was used.

Results

Results of normality test

This section provides the results of normality test of pre-test and post-test data in tables 1.

Table 1. Results of Normality Test of Pre-test and post-test Data

Variable	Self-concept (pre-test)	Self-concept (post-test)
N	60	60
Test Statistic	0. 87	0.140
Asymp. Sig. (2-tailed)	0.26	0.40

As shown in Table 1, the distribution of data was normal in the pre-test and post-test. Table 2 shows the results of descriptive statistics for the synchronous and synchronous groups.

Table2. Results of Descriptive Statistics for the Synchronous and Asynchronous Groups

Group	Self-concept	N	Minimum	Maximum	Mean	Std. Deviation
Synchronous	Pre-test	30	31.00	69.00	49.30	3.16
	Post-test	30	44.00	90.00	71.33	2.10
Asynchronous	Pre-test	30	28.00	54.00	47.00	3.66
	Post-test	30	40.00	82.00	68.50	2.80

As indicated in Table 2, the pre-test mean of self-concept of the synchronous group was 49.30, and standard deviation was 3.16. The mean and standard deviation values in the self-concept post-test were 71.33 and 2.10, respectively. In *asynchronous* group, the pre-test mean of self-concept was 47.00, and standard deviation was 3.66. The mean and standard deviation values in the self-concept post-test were 68.50 and 2.80, respectively.

To see whether synchronous and asynchronous e-learning have a significant effect on EFL learners' self-concept, a paired samples t-test was run. The results are presented in Table 3.

Table 3. Results of Paired Samples t-test for the Synchronous and Asynchronous Groups

Variable	Paired Differences			T value	DF	p
	Mean Difference	SD	Std. Error Mean			
Synchronous pair	22.03	4.595	1.186	-11.294	29	.000
Asynchronous pair	21.50	.315	.071	-12.671	29	.000

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The results of the paired samples *t*-test showed that there was a significant difference (t= -11.29, p<.05) between the mean of the self-concept scores of the synchronous group in the pre- and the post-test. More particularly, the participants' self-concept has increased significantly from the pre-test to the post-test. This shows that synchronous e-learning had a significant effect on EFL learners' self-concept. In regard to the asynchronous group, the results of the paired samples *t*-test showed that there was a significant difference (t= -12.67, p<.05) between the mean of the self-concept scores of the asynchronous group in the pre- and the post-test. More particularly, the participants' self-concept has increased significantly from the pre-test to the post-test. This shows that asynchronous e-learning had a significant effect on EFL learners' self-concept.

To investigate which e-learning type is more effective on EFL learners' self-concept, the pre-test and post-test mean self-concept scores of the synchronous and asynchronous groups were compared with each other running an analysis of covariance (ANCOVA) test. Before performing the analysis, it was necessary to examine the assumptions of equality of variance. Table 4.4 shows the results of the Levene's test. As can be seen in the table, the assumption of equality of variance is met. The results of the ANCOVA test are shown in tables 5.

Table 4. Results of Levene's test of equality of error variances

F	df1	df2	p
0.59	1	58	0.45

Table 5. Results of ANCOVA

Source	**SS**	**DF**	**MS**	**F**	**p**
Pre-test	2746.39	1	2746.39	50.91	0.000
group	4301.51	1	4301.51	79.74	0.000
error	171.41	1	171.41	3.18	0.08
Total	3075.01	57	53.95		

The results shown in the Table 5 indicate that the differential effects of treatment (i.e., asynchronous and synchronous e-learning) on the posttest self-concept scores of the participants were not significant (F= 3.18, p>.08) under the condition of eliminating the effects of the covariate (i.e., the pretest self-concept scores). This shows that both e-learning types have been equally effective on EFL learners' self-concept. In other words, no e-learning type was more effective than the other type of e-learning on EFL learners' self-concept.

Discussion

The results of data analysis confirmed that the differential effects of treatment (i.e., asynchronous and synchronous e-learning) on the posttest self-concept scores of the participants were not significant (F=

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3.18, p>.08) under the condition of eliminating the effects of the covariate (i.e., the pretest self-concept scores). This shows that both e-learning types have been equally effective on EFL learners' self-concept. In other words, no e-learning type was more effective than the other type of e-learning on EFL learners' self-concept.

As a justification for the findings, it can be said that since learners has a positive attitude toward synchronous and asynchronous e-learning, this may have led to improvements in their self-concept. This justification is consistent with some previous studies including those by Cheok et al. (2017), Mohsen and Shafeeq (2014), and Yunus et al. (2013) wherein it was indicated that EFL learners had positive attitudes towards and perceptions of e-learning. Another justification is that synchronous and asynchronous e-learning may increase learners' motivation to learn language (Paul & Jefferson, 2019) and this leads to higher levels of self-concept among them.

Furthermore, the researcher believes that another possible justification for the positive effect of synchronous and asynchronous e-learning on self-concept of learners is that these methods may increase learners' autonomy and this in turn leads to their significant improvement in their self-concept. Radia (2019) argument that e-learning may help students monitor their progress can also be a justification for the findings of this study. Moreover, his justification that e-learning prevents student frustration and grade disputes can also be regarded as a good justification for the findings.

Another point worth referring in justifying the findings of the present study is Paul and Jefferson (2019) argument that through e-learning, higher order cognitive processes including critical thinking, problem-solving, and decision-making are stimulated and this motivates individuals to benefit more from it. Moreover, the findings can be justified by referring to the argument that e-learning significantly leads to more learner thinking and participation in class activities, and this can affect their self-concept (Jena, 2019). Additionally, the role of enhanced self-regulation of students due to exposure to e-learning cannot be neglected in the effect of e-learning on self-concept (Ökmen & Kiliç, 2020). Last but not least, the increased attention of learners as a result of being exposed to synchronous and asynchronous e-learning may have mediated the effect of e-learning on self-concept of learners (Paul & Jefferson, 2019).

In sum, the researcher tends to attribute the obtained results, among other things, to the mediating role of the affective factors whose dominant role in and association with self-concept cannot be ignored. Among such variables, reduced anxiety, increased autonomy, enhanced motivation, integrated self-regulation and self-direction and increased creativity and critical thinking can be mentioned (Jena, 2019; Ökmen & Kiliç, 2020; Paul & Jefferson, 2019).

Although the researcher found no study on the effect of synchronous and asynchronous e-learning of EFL learners' self-concept, consistent with this study, Barber et al. (2011) found that synchronous and

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asynchronous e-learning enhances affective traits of learners. The same argument has been made by Nguyen and Ikeda (2015) when they showed a significant improvement in learners' affective traits such as self-regulation and self-efficacy as a result of synchronous and asynchronous e-learning.

Conclusion

Based on the results of this study, it can be concluded that synchronous and asynchronous e-learning can contribute to significant improvements in EFL learners' self-concept. Furthermore, in a more general sense, it is concluded that beside the significant effect of e-learning on cognitive traits of learners as shown in previous studies, e-learning has the potential to impact EFL learners affectively. The other conclusion which can be made from this study is that although previous studies have argued for the controversy on the effectiveness of e-learning, e-learning in its both forms (i.e., synchronous and asynchronous) is worth trying to the point where negative outcomes outnumber the positive ones.

The results of the study can inform EFL teachers about the potential of synchronous and asynchronous e-learning in enhancing EFL learners' self-concept and the need to use it in EFL classes. In addition, the results will make EFL teachers aware of the effectiveness of synchronous and asynchronous e-learning on increasing EFL learners' self-concept, and the necessity to use it in order to enhance students' affective characteristics. Another implication of the results is that since the relationship between such variables as self-concept and other variables like motivation, autonomy and self-esteem has been proved in the previous studies, EFL teachers are recommended to benefit from synchronous and asynchronous e-learning in English classes so that students become more motivated and their autonomy and self-esteem are improved. Moreover, taking the findings into account, another implication is that curriculum planners design future EFL courses in a way that the use of synchronous and asynchronous e-learning is more encouraged.

This study focused on intermediate learners of English. Future research is recommended on learners learning English at other levels. Another research area worth investigating is the effect of e-learning on affective factors whose significant effect on EFL learning has been evidenced in the literature. Finally, future researchers are recommended to triangulate the process of data collection of the present study, using interview and other qualitative tools.

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References

Badiyepeymaiejahromi, Z., Yektatalab, S., Momennasab, M., & Mehrabi, M. (2020). Factors affecting nursing students' professional self-concept in Iran: a qualitative study. *Professioni infermieristiche*, *73*(2).

Balan, A. K., Jacintos, A. R., & Montemayor, T. (2020). The influence of online learning towards the attention span and motivation of college students. *Unpublished undergraduate research]. Mapua University*.

Barber, L. K., Bagsby, P. G., Grawitch, M. J., & Buerck, J. P. (2011). Facilitating self-regulated learning with technology: Evidence for student motivation and exam improvement. *Teaching of Psychology*, *38*(4), 303-308.

Chapelle, C. A. (2001). *Computer applications in second language acquisition*. Cambridge University Press.

Cheok, M. L., Wong, S. L., Ayub, A. F., & Mahmud, R. (2017). Teachers' Perceptions of E-Learning in Malaysian Secondary Schools. *Malaysian Online Journal of Educational Technology*, *5*(2), 20-33.

Colomo-Magaña, E., Soto-Varela, R., Ruiz-Palmero, J., & Gómez-García, M. (2020). University students' perception of the usefulness of the flipped classroom methodology. *Education Sciences*, *10*(10), 275.

Ellis, R. (2004). Down with boring e-learning! Interview with e-learning guru Dr. Michael W. Allen. *Learning circuits. Retrieved from. http://www. astd. org/LC/2004/0704_allen. htm*.

Ghaderi, A. (2005). Psychometric properties of the self-concept questionnaire. *European Journal of Psychological Assessment*, *21*(2), 139-146.

Jena, A. K. (2019). Effects of asynchronous e-mail intervention on learning performance in relation to thinking skills, executive functions and attention benefits of Indian children. *The Online Journal of Distance Education and e-Learning*, *7*(3), 151-168.

Li, Y. (2018). Current problems with the prerequisites for flipped classroom teaching---a case study in a university in Northwest China. *Smart Learning Environments*, *5*(1), 1-23.

Marsh, H. W. (1988). Causal effects of academic self-concept on academic achievement: A reanalysis of Newman (1984). *The Journal of Experimental Education*, *56*(2), 100-103.

Mohsen, M. A., & Shafeeq, C. (2014). EFL Teachers' Perceptions on Blackboard Applications. *English Language Teaching*, *7*(11), 108-118.

Nguyen, L. T., & Ikeda, M. (2015). The effects of ePortfolio-based learning model on student self-regulated learning. *Active Learning in Higher Education*, *16*(3), 197-209.

Ökmen, B., & Kiliç, A. (2020). The Effect of Layered Flipped Learning Model on Students' Attitudes and Self-Regulation Skills. *International Journal of Research in Education and Science*, *6*(3), 409-426.

Paul, J., & Jefferson, F. (2019). A comparative analysis of student performance in an online vs. face-to-face environmental science course from 2009 to 2016. *Frontiers in Computer Science*, *1*, 7.

Pushpa, M., & Yeshodhara, K. (2014). Emotional Intelligence and Self Concept of B. Ed Students. *International Journal of Education and Psychological Research (IJEPR)*, *3*(2), 25-29.

Radia, B. (2019). Approaching a reading course via moodle-based blended learning: EFL learners' insights. *Modern Journal of Language Teaching Methods (MJLTM)*, *9*(11), 0-0.

Ribas, F. (2009). The role of self-concepts in students' motivation in the Brazilian EFL context. *Linguagem & Ensino, Pelotas*, *12*(2), 463-486.

Yunus, M. M., Nordin, N., Salehi, H., Embi, M. A., & Salehi, Z. (2013). The use of information and communication technology (ICT) in teaching ESL writing skills. *English Language Teaching*, *6*(7), 1-8.

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